

## 8. Monitoring

### 8.1. Overview

Section 6 identified five broad categories of environmental impact associated with the LIP.

- Those potentially arising as a result of changes to emissions to air from transport and consequent effects on human health, on climate change, on the health of flora and fauna and on amenity;
- Those potentially arising as a result of changes to noise levels from transport as a result of the LIP and consequent effects on human health, on the health of flora and fauna and on amenity;
- Land take from resources of environmental value, potentially arising as a result of new infrastructure provision;
- Those potentially arising as a result of changes in peoples ability to use particular modes of travel (e.g. public transport, walking, and cycling); and
- Those potentially arising as a result of changes to the overall quality of the street environment.

Monitoring enables the measurement of performance of the LIP against environmental objectives or targets, and can help in answering the following questions:

- Is the LIP contributing to the desired environmental objectives and targets?
- Is the plan performing as well as expected?
- Are mitigation measures performing as well as predicted?
- Are there any undesirable environmental effects? Is remedial action required?
- Are the environmental effects predictions of the SEA accurate?

The following information was taken into account when designing a monitoring system:

- Determining what needs to be monitored;
- Identify what sort of information is required;
- Identify existing sources of information;
- Identify and fill any gaps in existing information;
- Determine when remedial action would be required and what actions should be taken; and
- Develop a management plan outlining responsibilities, timeframes and presentations.

This has been sourced from DfT (2004) but has one major weakness in that **it is very difficult to identify any monitoring indicators that can be used to realistically monitor progress on the LIP.** Almost all of the commonly used indicators are affected by a range of variables, for example the cost of fuel and advancement in engine emission technology, over which Haringey has little or no influence through its LIP.

The following sections outline the methods that can be adopted in order to monitor change in the future for particular topics.

## 8.2. Local Air Quality

Air quality is influenced by both local emissions and by emissions from elsewhere which are blown into an area. Air quality affects both human health and the health of other living things. Motor vehicle transport is one of the major sources of local air pollution and a significant source of particulate matter (PM<sub>10</sub>) and nitrogen dioxides (NO<sub>2</sub>). Air pollution from NO<sub>x</sub> and PM<sub>10</sub> is predominantly attributable to HGVs. Both forms of pollution are detrimental to human health and the local environment. These transport related pollutants are of particular concern within residential and shopping areas where the concentration of pedestrians is greatest, and where wildlife habitats are adjacent to major roads.

There are three sites that are continuously monitored on behalf of Haringey Borough Council by Kings College. Each of the sites monitors NO<sub>2</sub> and PM<sub>10</sub> levels as well as either SO<sub>2</sub> or O<sub>3</sub> levels, see **Table 8.1** below for details:

**Table 8.1: Air quality monitoring sites in the London Borough of Haringey**

<i>Location</i>	<i>Borough</i>	<i>Classification</i>	<i>Start of monitoring</i>	<i>Monitored emissions</i>
Town Hall	Haringey	Roadside	29/11/1994	NO <sub>2</sub> , PM <sub>10</sub> , SO <sub>2</sub>
Priory Park	Haringey	Suburban	29/03/1996	NO <sub>2</sub> , PM <sub>10</sub> , O <sub>3</sub>
Bounds Green	Haringey	Roadside	21/07/1999	NO <sub>2</sub> , PM <sub>10</sub> , SO <sub>2</sub>

Source: [www.londonair.org.uk](http://www.londonair.org.uk)

An assessment would need to be carried out to establish whether any change in air quality was attributable to LIP measures or to other factors.

## 8.3. Emissions to air and climate change

Climate change is considered to be one of the major potential issues in terms of SEA of the LIP proposals. Transport is a major source of greenhouse gases notably carbon monoxide and carbon dioxide. Even though LIP measures may have a comparatively small impact on overall greenhouse gas emissions the link between overall traffic and climate change is very strong particularly when considered with other local, regional and central government policies.

It is difficult to directly measure the effects of climate change at a local level. However CO<sub>2</sub> emissions, generally regarded as one of the main contributors to climate change, can be monitored at a local level. There are currently no fixed air quality monitoring sites within the Borough that record CO<sub>2</sub> levels.

Alternative indirect measurements that could be implemented in order to monitor change in this area are:

- Monitor the number of alternative fuel facilities across the Borough, e.g. electric vehicle recharging points and propane filling stations. There are currently two filling stations for LPG in the borough on Pinkham Way and Mayes Road;
- Monitor the number/proportion of the bus fleet that are within or exceeding the European Emission Standards as proposed within the LEZ;
- Monitor the number/proportion of vehicles within the Council's fleet that are within or exceed the European Emission Standards as proposed within the LEZ;
- Analysis of private vehicle ownership change over time;
- Analysis of public transport usage over time; and
- Changes in traffic flow at a selected group of locations.

Although none of these directly measures greenhouse gas emissions they will give an indication of the trend.

#### **8.4. Noise**

Noise from traffic is the main source of noise in most urban areas. It is considered to be one of the major potential issues in terms of SEA of the LIP proposals. Transport has a very direct impact on noise levels which has indirect impacts on amenity and on human health.

The London Road Traffic Noise Map was commissioned by Defra in 2004 and modelled the level of noise associated with motor vehicle traffic. The model calculated that during the daytime, 14% of Haringey is affected by noise levels greater than 60 dB(A). At night the area that is affected by noise levels greater than 60 dB(A) is reduced to 3% of the Borough.

The 2004 noise map of London provides detailed baseline information that can be utilised by the Borough to monitor future noise levels and mitigate accordingly. Future revisions of the noise map of London may be used to monitor change in noise in Haringey.

#### **8.5. Landtake**

It should be relatively easy to identify landtake for schemes proposed under the LIP. However it is not anticipated that any measure in the LIP will involve significant land-take.

#### **8.6. Transport accessibility**

The way in which access to transport affects social exclusion of groups within the population is an important issue for SEA of the LIP proposals. Transport is an important factor in the lives of all people and is a key factor in social exclusion particularly in respect of employment. How LIP measures affect the access which socially excluded people have to transport and the ability to move around is critical.

Monitoring the number of public transport routes that operate in each ward in the Borough provides an indication of the geographic extent of public services available. This can be done using GIS to define areas of residential development area that are more than 200 metres from a public transport route. Comparison over time should give an indication of changes in the level of accessibility across the Borough although assessment will be needed to be undertaken to associate any change with LIP measures. In some London boroughs an accessibility index has been developed and this would be one option for areas in Haringey.

## **8.7. Human health monitoring**

### **8.7.1. General**

Human health is adversely affected by the reduced exercise associated with motorised modes, by injury accidents associated with their use, by the adverse effects of emissions on air quality and through increased stress as a result of reduced amenity within streets.

Promotion of alternative modes of transport, such as cycling to work or to school, forms a major part of the initiatives to reduce road traffic levels, accidents and to improve air quality.

The following targets are defined in the Government's road safety strategy, Haringey Council's draft walking strategy, and Haringey Council's draft cycle strategy.

### **8.7.2. Road safety targets**

In the Government's road safety strategy, "Tomorrow's Roads – Safer for Everyone", new road accident casualty reduction targets, based on 1994 to 1998 average figures, include:

- To reduce the number of children killed and seriously injured (KSI) by 50% by 2010;
- To reduce overall KSI numbers by 40% by 2010; and
- To reduce slight casualties by 10% by 2010.

These can all be monitored using accident records.

### **8.7.3. Walking targets**

The main targets as set by the draft Walking Strategy are:

- To increase the number of walk trips by 5% over 10 years; and
- To increase the modal share of walking by 5% from 27% (1991) to 32%.

Census data may be used to monitor travel-to-work on foot but is only available at 10 year intervals.

Two sub-targets are included in the draft strategy:

- To increase the number of walk journeys to school by 5% by 2008 (from 60 to 65%);
- To reduce the number of pedestrian casualties by 10% by 2003 and 20% by 2008.

Monitoring of walk journeys to school would require a specific data collection exercise repeated at intervals. Pedestrian casualties can be monitored using accident records.

#### 8.7.4. Cycling targets

The main target as set by the draft Cycle Strategy are:

- 10% modal share by cycle by 2012 with an interim target of doubling the number of trips by 2002 in line with the National and London Cycling Strategies.

Census data may be used to monitor travel-to-work on pedal cycle but is only available at 10 year intervals.

Two sub-target are included in the draft strategy:

- to increase cycling to secondary schools to 20% of all trips by 2012; and
- to reduce the casualty rate per cycle trip by 10% within 5 years and by 20% over 10 years.

Monitoring of cycle journeys to school would require a specific data collection exercise repeated at intervals. Cyclist casualties can be monitored using accident records.

### 8.8. Monitoring the street environment

Good quality walking surfaces, roads uncluttered by street furniture and facilities, such as crossing points, dropped kerbs and tactile paving, are all important to improving the street environment particularly for those people with a disability or mobility handicap. The Draft LIP provides a good summary of the key factors determining the quality of the street environment:

*“The quality of the pedestrian environment is linked to factors such as the quality of the public realm, traffic volumes and speed, and good street lighting. A good quality environment for walking is a pre-requisite to more walking. The approach should be to address the environment in an area-wide basis and seek to address all the issues within an area. This approach is most appropriate in areas within and near to the borough’s town centres and around public transport interchanges and rail stations.”*  
**[LB of Haringey, Draft LIP, Ch 5, pg.156]**

The overall environment on roads for which the Borough has responsibility is perhaps the area most likely to be affected by LIP measures. Monitoring the street environment is a challenge. Haringey maintains a footway condition survey for the entire Borough, known as Best Value Indicator 187 (BVI187).

This survey identifies footways that require maintenance or improvement, including improvements to street furniture, surface condition or physical extent of footway. The BVI187 footway index identifies past maintenance trends and could act as a useful platform for assessing any future environmental effects of LIP measures.

One possible solution for monitoring whether the LIP has had any impact on the overall street environment is to monitor 50 randomly selected sections of street at intervals, assessing a range of factors which might include:

- Quality of public realm;
- Level of traffic;
- Extent of street furniture;
- Presence of on-street servicing;
- Width of footway;
- Pedestrian flow within a set interval (e.g. 30 minutes);
- Presence of urban vegetation (e.g. trees)
- Function of street (e.g. residential, commercial, main transport link).

These factors can be compared annually to assess the impact of the LIP on the street environment.

### **8.9. Flora and fauna**

Flora and fauna may be directly affected by a range of impacts that may accumulate to a significant level. For example, species are directly affected by increased levels of noise, particulate matter and air pollution from increased volumes of motor vehicle traffic.

Biodiversity corridors situated along or in close proximity to transport corridors need to be monitored, as these localities are within the immediate impact zone of air pollution from vehicular traffic.

A possible monitoring solution regarding the impact to flora and fauna is to record the change in number for protected species present within the Borough. Although change in population size may not be a direct consequence of air pollution, it may serve as a useful guide. Protected species are identified in the local BAP. Further consultation with conservation officers within the Borough is needed to establish whether this is an appropriate measure.

### **8.10. Additional Monitoring**

The following areas are appropriate for monitoring:

#### *Reducing traffic congestion*

- Traffic volumes growth or reduction to be set;
- Journey times on 'A' roads and busy bus routes; and
- Proportion of personal travel made by means other than car.

*Improving the operation of parking and loading arrangements*

- Target for parking and loading regulations compliance to be agreed with TfL;
- Extent of Controlled Parking Zones.

*Improving accessibility and social inclusion on the transport network*

- Accessibility of the transport network, particularly for disabled people, older people and women travelling at night.

*Bringing transport infrastructure to a good state of repair*

- Target for 'A' Roads and Busy Bus Routes to achieve a serviceable standard.

*School travel plan*

The following information is taken from the LB of Haringey School travel plan strategy 2005/06 – Monitoring [pg.4]:

*“All schools that have a School Travel Plan developed will carry out surveys annually. The STP team will carry out an in-depth analysis of these surveys and feed back the results to the school. There are three different types of surveys. Firstly, the school will be given a ‘Hands up survey’ which will be conducted per class in school. The second is a ‘Take home survey’ that can be done as part of homework or in class (specifically in citizenship lessons). The last survey is a Staff Questionnaire. The STP team will also produce detailed maps of students travel patterns. The surveys will show any change in travel patterns and modal split, as well as being attitudinal.*

*The School Travel Team will arrange for traffic and pedestrian counts to be carried out at schools who are developing a School Travel Plan. Detailed site surveys of the local area and engineering works that have been done around the school will also be conducted.*

*We intend to evaluate the impact of the work we do through the ‘ Draw and Write’ method in a selection of the borough’s schools.*

*The School Travel Team will regularly liaise with the school to ensure they are working towards meeting their aims, objectives and achieving their targets. Progress reports on School Travel Plans and School Travel Strategy will be given to the Regional School Travel Advisor every term.”*

The proportion of schools with a school travel plan should be available.

### *Public transport and accessibility*

The following bus target information is derived from Haringey's Draft LIP, Chapter 5, page19.

There are two Performance Indicators/Targets that are continually reviewed by TfL and the boroughs. These are:

- Bus Excess Wait Time (EWT): TfL to reduce EWT to 1.3 minutes per passenger journey by 2009/10
- Bus Journey Times: The bus journey times target will be set by summer 2005.

Four performance indicators have been proposed by Haringey Draft LIP for monitoring Borough Bus Targets. They include:

- Total bus lane kilometre/hours in operation per borough;
- Number of bus priority junctions in operation per borough;
- Number and percentage of bus stops with clearways per borough;
- Number and percentage of accessible bus stops per borough.

### **8.11. Summary**

The key to monitoring the progress of the LIP is to identify indicators that properly reflect the environment as it is affected by LIP measures. Most of the indicators set out above will be affected much more by influences that are external to the LIP than by Lip measures. They are considered appropriate only as general indicators of the state of the environment rather than indicators of LIP progress. We do not believe that effective monitoring of the LIP would be achieved, for example, by air quality monitoring at selected locations on the highway network as the results would be affected by numerous factors outside Haringey's control.

The key area where the LIP has a major impact is on the amenity of the street environment on roads that are the borough's responsibility. This will include such indicators as footway condition that are already monitored under best value. The most appropriate way forward appears to be to monitor either selected locations on an annual basis or to choose a sufficiently large random sample of street locations at appropriate intervals, perhaps 5 years, and monitor change over that period.